National Grid

Solar Plan

October 2008

National Grid
Leading Massachusetts's Solar Future

Consistent with National Grid's commitment to the development of renewable resources for the Commonwealth, the Company has developed a plan to become the leading utility promoting solar photovoltaic ("PV") energy, to encourage the growth of the solar industry in Massachusetts.[1] This submission outlines our approach to advance and develop solar PV energy across the Commonwealth.

Our plan is composed of three main components:

(A) **Company-Sited Solar**: Develop, build, and own solar facilities across the Commonwealth at locations owned and operated by the Company;

(B) **Commercial-, Municipal-, School-, and Low Income -Sited Solar**: Supplement National Grid's successful energy management and efficiency programs by working with customers, schools and municipalities to identify locations where the Company would install, own and operate solar PV on customer-owned buildings, structures or properties. We also plan to promote solar awareness with a strong focus on education and science curriculums in schools where PV is located across the Commonwealth; and

(C) **Customer-Owned Solar**: Similar to (B) above, working within the Company's successful energy management and efficiency programs, the Company would add a component that assists customers in installing their own solar generation

[1] The National Grid electric distribution companies operating in Massachusetts are Massachusetts Electric Company and Nantucket Electric Company, both doing business as "National Grid". National Grid's gas distribution companies operating in Massachusetts are Boston Gas Company, Essex Gas Company, and Colonial Gas Company, collectively doing business as "National Grid".

facilities in concert with the Commonwealth Solar Initiative through education, enhanced marketing, and on-bill financing.

With this approach to solar, the Company is proposing to take aggressive steps to advance the policy objectives set forth in the Green Communities Act[2] recently enacted by the legislature and signed into law by Governor Patrick. As we develop and execute our strategy, the Company will make detailed filings with the Department to obtain the necessary pre-approvals.

National Grid is committed to being an innovative leader in energy management and to safeguarding our global environment for future generations. To that end, National Grid recognizes the importance of taking action now to mitigate the effects of global climate change.[3] Consequently, National Grid fully supports and commends the Commonwealth of Massachusetts's recent enactment of the Green Communities Act, and believes that expanded deployment of solar generation technologies is critical to achievement of the Commonwealth's broad policy goals. Moreover, National Grid believes that it is uniquely positioned to efficiently and effectively provide integrated solar PV across all customer segments.

A summary of each component of the Company's strategy is below:

A. Company-Sited Solar

The Company-sited solar component of National Grid's strategy is to identify Company-owned sites that would be optimal for installing solar PV. Specifically, National Grid is targeting Company-owned properties that are former manufactured gas plant ("MGP") sites that have been or are currently in the remediation process. The focus on former MGP sites is to

[2] Chapter 169 of the Acts of 2008 or Senate No. 2768 (July 2, 2008). Among other things, the Green Communities Act allows electric distribution companies in Massachusetts to construct, own and operate up to 50 megawatts ("MW") of solar generating facilities by January 1, 2010.
[3] National Grid has set an aggressive target to reduce 80% of its own emissions of greenhouse gases by 2050.

optimize the use of otherwise underutilized property due to historical impacts and to capitalize on the proximity of these sites to existing utility infrastructure. The Company is also targeting other Company-owned property near substations and rights of way to evaluate for their potential for solar PV. The Company anticipates further study and investigation regarding the use of ground mounted arrays in these locations as shown below:

The Company is currently conducting due diligence with regard to a number of proposed sites, and expects to evaluate additional sites over the next several months. A sampling of several sites under consideration is described below in more detail:

Revere: This property is located off of Wharf St. in Revere, MA. The Company anticipates that approximately 1.5 MW of solar PV could be installed at this site. This site is a wide open space with both an active and abandoned substation. In addition, work is scheduled to rebuild the current substation on the site in the near future, and part of the site may well be used for additional expansion of the substation. In the interim, there is a

contingency loading condition in the area which a solar installation would help to alleviate.

This location consists of two parcels; one of the parcels is categorized under the Massachusetts Contingency Plan as a Response Action Outcome ("RAO") - Class A-3, which means it is under a restricted use due to remaining levels of historical impacts. The restrictions on the use of the site are consistent with the installation of solar PV and should have no impact on the project. To perform work on these parcels, certain filings by a Licensed Site Professional ("LSP") with the MA Department of Environmental Protection ("MADEP") must be made (i.e., a Release Abatement Measure ("RAM")) that describe the environmental precautions that need to be taken when performing excavation activities at the site. The other parcel has no environmental restrictions. It is expected that for both parcels a submittal will be required to state and local authorities for zoning and wetland permits.

A conservative estimate of costs for solar PV on this site would be approximately $11.5 million. This amount of solar PV could generate $250,000 - $300,000 annually for the benefit of customers.[4]

Dorchester: This site is located at 100 Victory Rd. in Dorchester, MA, and is the site of the large natural gas tank visible from the I-93 expressway south of Boston. The Company anticipates that approximately 1 MW of solar PV could be installed at this site. There are two parcels at this site. One of the parcels could host an estimated 550 kW. The other parcel could potentially host 350 kW.

[4] The estimate of funds is based on the sale of output as a "settlement-only" generator to the ISO-NE, participation in the ISO-NE's forward capacity market, and sales of renewable energy certificates. This estimate does not include potential benefits associated with carbon reduction allowances.

This site is a former MGP site with limited permitted uses. Installation of utility scale PV would be an optimal use for the site. To perform work on this site, filings by an LSP will need to be made that describe the appropriate measures and protections for workers at the site. It is also expected that certain state and local permits will be needed for this project. A conservative estimate of costs for solar PV on this site would be slightly less than $8 million. This amount of solar PV could generate $150,000 - $200,000 annually for the benefit of customers.[5]

Everett: This site is located on Rover St. in Everett, MA. The Company anticipates that approximately 1.5 MW of solar PV could be installed at this site. This site is within a

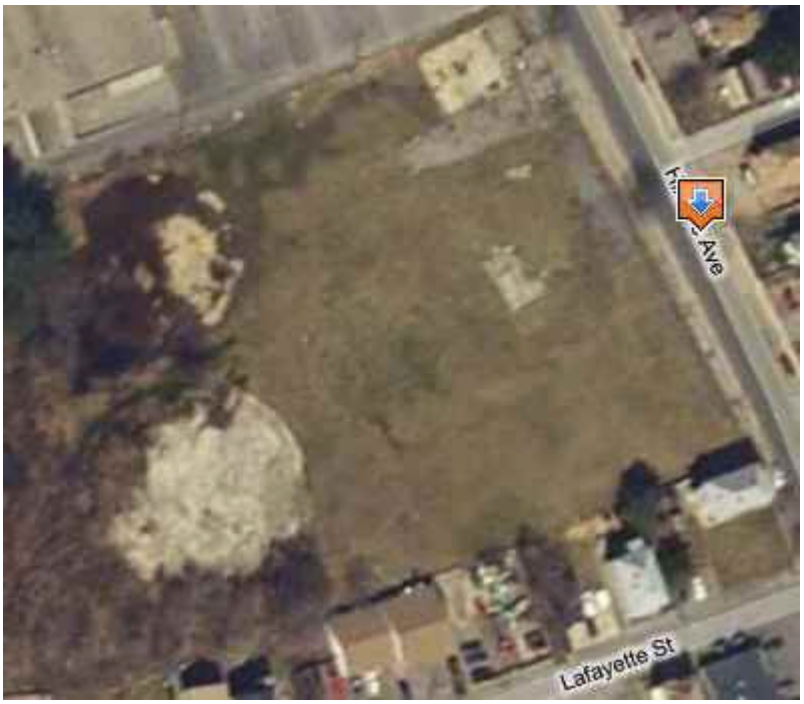
[5] The estimate of funds is based on the sale of output as a "settlement-only" generator to the ISO-NE, participation in the ISO-NE's forward capacity market, and sales of renewable energy certificates. This estimate does not include potential benefits associated with carbon reduction allowances.

targeted demand response area where the installation of PV would help to alleviate constraints on the local 23 kV sub-transmission system in the area. The Company is currently working with grant funding from the Massachusetts Renewable Energy Trust ("MRET") to deploy renewable energy systems at customer locations to relieve loading in the same area. The site is part of a much larger Company holding and is not an environmental site, with the exception of one small portion. For the small portion that is part of the environmental process, certain measures will be necessary to construct on this property that are separate from this work.

A conservative estimate of costs for solar PV on this site would be approximately $11.5 million. This amount of solar PV could generate $250,000 - $300,000 annually for the benefit of customers.[6]

Haverhill: This site is located at 98 Hilldale Rd. in Haverhill, MA. This site was recently remediated. The proposed use is very compatible with site environmental conditions. To perform work on these parcels, certain filings by an LSP with the MADEP must be made (i.e., a RAM) that will outline certain environmental requirements. The Company anticipates that approximately 1 MW of solar PV could be installed at this site.

[6] The estimate of funds is based on the sale of output as a "settlement-only" generator to the ISO-NE, participation in the ISO-NE's forward capacity market, and sales of renewable energy certificates. This estimate does not include potential benefits associated with carbon reduction allowances.



A conservative estimate of costs for solar PV on this site would be slightly less than $8 million. This amount of solar PV could generate between $175,000 and $200,000 annually for the benefit of customers.[7]

Each of the sites described above will require extensive engineering and environmental analysis and may also require federal, state and local permitting prior to moving forward with installing solar PV. It should be noted that all the environmental site work mentioned above will not be included as part of the costs associated with this effort. Environmental work at each of the sites is covered under separate funding. The development of an appropriate request for proposals ("RFP") and bid evaluation process is also required for successful implementation of these programs. These efforts have begun and will continue concurrently as the Company further develops its plans.

[7] The estimate of funds is based on the sale of output as a "settlement-only" generator to the ISO-NE, participation in the ISO-NE's forward capacity market, and sales of renewable energy certificates. This estimate does not include potential benefits associated with carbon reduction allowances.

In summary, the preliminary sizes, and annual energy production, for the four sites is shown below.

Site	PV size (kWs)	Potential annual energy production (kWhs)
Revere	1,500	1,900,000
Dorchester	1,000	1,200,000
Everett	1,500	1,900,000
Haverhill	1,000	1,200,000
Totals	**5,000**	**6,200,000**

While the ultimate cost impacts to customers resulting from the Company's solar PV development will depend upon a variety of factors, the Company estimates that the first four sites, in the aggregate, will cost approximately $38 million. These estimates are based on the actual cost of the Brockton Brightfields project, which was $7.69/watt. However, the Company believes that this may be a conservative proxy for these installations as Brockton was placed in service in 2006 and affords fewer economies of scale than the proposed installations, which for each site, are two to three times the scale. However, recent legislation, if passed, would allow utilities to take advantage of the 30% Federal investment tax credit, which could reduce this cost to $5.38/watt or $27 million total.

The Company would propose to recover the net costs of these projects in distribution rates, subject to the Department's approval. Based upon preliminary rate assumptions, over a twenty year period, the average recovery of such range of costs in rates, net of associated revenues generated by the sale of the output from the installations, operations and maintenance (O&M) costs, and using the installed costs of the Brockton Brightfields project built in 2006, a typical 500 kWh customer would be assessed an additional $0.08 per month. However, if the

legislation above is passed, the impact would only be $0.05 per month. These costs and expected revenue estimates are based on recent research by Navigant for O&M costs; the use of the PVWatts calculator from the National Renewable Energy Laboratories (NREL) website for hourly energy production; the hourly clearing prices from the ISO-NE for the period 8/1/07 through 7/31/08 applied to the hourly energy production; and an estimate of 5.5¢ per kWh for the value of renewable energy certificates ("RECs"). In year four, and upon successful enrollment in a future forward capacity auction in the ISO-NE capacity market, an additional $60,000 per year could be realized by the PV projects for customers from the capacity markets. It is expected that as market conditions change (i.e., price per kWh increases for energy production, price on carbon, etc.) any additional benefits generated will be used to offset costs of the program in the later years.

National Grid's goal in implementing solar PV is to lead solar PV market growth in the Commonwealth. National Grid believes the installed costs of deploying solar PV will drop significantly as the market for solar PV develops more fully. From the recent study commissioned by the Massachusetts Technology Collaborative[8], installation of 250 MWs of PV could decrease wholesale energy costs by 0.4% or $23 million annually. Prorating this for the initial 5 MWs identified to date could reduce those costs by 0.008% or an annual benefit for National Grid customers in Massachusetts of over $150,000. In addition, the recent Division of Energy Resources/ Massachusetts Technology Collaborative report on renewable energy potential[9] and other sources show prices for PV dropping dramatically in the near future. Large projects such as those proposed in this document appear to be able to get pricing as low as $5 per

[8] "Impacts of Distributed Generation on Wholesale Electric Prices and Air Emissions in Massachusetts" Synapse Energy Economics, prepared for the Massachusetts Technology Collaborative; March, 2008.
[9] "Massachusetts Renewable Energy Potential", Navigant Consulting, prepared for the Massachusetts Division of Energy Resources and the Massachusetts Technology Collaborative; August, 2008

watt, dramatically less than the estimates used in this initial analysis. In addition, some estimates show that for every $5 per ton carbon allowance from the Regional Greenhouse Gas Initiative ("RGGI") auction, the resulting supply prices could increase by as much as $0.0025 per kWh. Depending upon the price of carbon, the 6,200 MWhs generated by the 5 MWs in this proposal, based on this estimate, will provide additional non-carbon generation which could limit other cost increases and assist is tempering overall costs for customers.

B. Commercial-, Municipal-, School-, and Low Income -Sited Solar

The customer-sited solar component of the Company's development will involve the installation of Company-owned solar PV at customer sites, including commercial properties, municipal buildings, schools and low-income housing. For these applications, the Company will own the solar PV generation and likely enter into a lease agreement with customers hosting solar PV on their properties, offering a rental payment or an equivalent credit on each customer's individual electric bill.

For its municipal and state customers, the Company would specifically target those customers who take measures to become green communities, in accordance with the Green Communities Act. Possible applications may involve solar facilities located on public parking facilities, such as carport-mounted installations, or solar facilities located on public schools. For school installations, we would plan to offer educational materials, such as kiosks and data-acquisition systems to educate students; bridging awareness to parents and the public. The Company also is working on a plan to provide low-income customers with the economic benefits of the output of solar PV arrays through either a centralized installation which could provide another funding mechanism to lower their monthly electric bill, or specific installations at low-income housing.

As a general approach in siting these facilities, the Company plans to partner with customers who have already pursued energy efficiency measures through the Whole Building Assessments Program (2007 Energy Efficiency Plan, section 3c), the DOER's Energy Audit Program, and the Company's other Energy Efficiency programs. To this end, the Company has begun offering a combined energy efficiency, demand response, and renewable energy audit. This was originally developed as part of its on-going Congestion Relief Pilot in Everett, funded with a grant from the MRET for both residential and commercial customers. This pilott works within a targeted demand response area but adds a renewable energy component to other load relief strategies. The Company has had experience with running targeted demand response programs in Brockton, Gloucester, Lowell, and other areas in the service territory since 2002. The pilot has generated a number of inquiries for solar installations and a number of specific PV proposals to be funded as well as four micro-CHP installations.

Due to the complexity of customer-sited installations, the Company anticipates additional work to bring this opportunity to market and intends to provide the Department with more detail in subsequent filings.

C. Customer-Owned Solar

In addition to the development of Company-owned solar generation, the Company is developing programs to promote the installation of customer-owned solar generation technologies in conjunction with National Grid's highly successful energy efficiency programs, similar to what is outlined above in section B. In particular, National Grid is committed to expanding customer-owned solar generation in concert with the existing Commonwealth Solar Initiative run by the MRET. This component of the Company's offering will allow customers who wish to own solar facilities and take advantage of recently enacted net metering legislation,

to receive assistance from the Company as long as they have participated in energy efficiency programs to reduce their electric energy needs. In furtherance of this goal, the Company may propose to provide eligible customers of the Commonwealth Solar Initiative with on-bill financing for the portion of the eligible solar project less the Commonwealth Solar Initiative rebate. This offering would be facilitated through our energy efficiency programs. This effort would be in conjunction with a marketing and education program focused on the environmental, educational and societal benefits for customers, to help move the market for solar PV.

Current Development Status

National Grid has engaged a third-party engineer to conduct a solar PV development feasibility report for its four Company-sited developments. The Company is simultaneously preparing to obtain federal, state and local permitting as needed. The Company is using the feasibility reports in its competitive bid process to design, purchase and install the systems; all other things being equal, National Grid plans to give preference to Massachusetts manufacturers and workforce. Discussions with Solar Electric Business Association of New England (SEBANE) and others in the solar PV field will inform selection criteria. Following each bid selection, the Company will be in a position to make a detailed filing with the Department to request pre-approval for the recovery of costs.

The Company proposes to repeat the above process to develop customer-sited solar systems and has begun the evaluation of sites owned by the MA Highway Department, and a site owned by the MA Turnpike Authority. National Grid recognizes that it is in the initial phases of implementing its three-part strategy, and the Company will make subsequent informational and cost-recovery filings with the Department, as necessary, as plans progress.